Instructions – Parts List

WITH OR WITHOUT ELECTRONIC METERS

V5™ V12™ EM6™ and EM12™ Dispense Valves

308642P

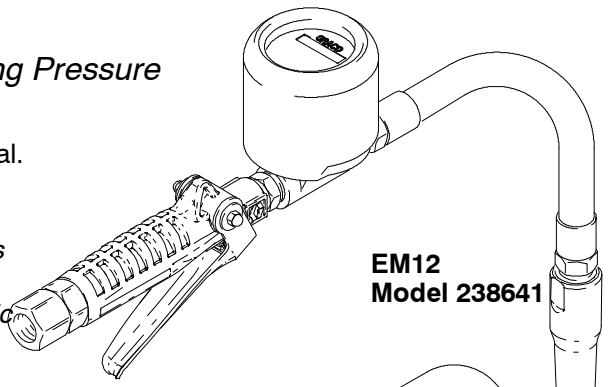
EN

For dispense of petroleum and synthetic based oils.

1500 psi (10 MPa, 102 bar) Maximum Working Pressure

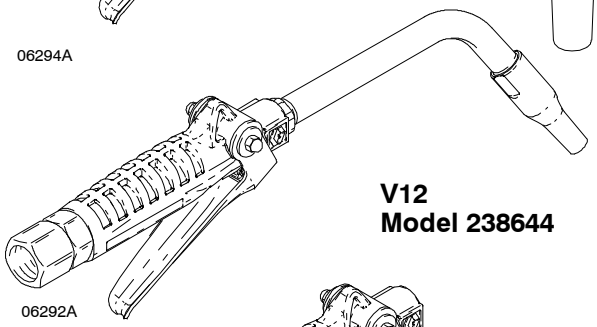
Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.

Notes*See the list on page 3 for Model Numbers and configurations.*
See manual 307965 for information on electronic meters 244075 and 244076.



EM12
Model 238641

06294A



V12
Model 238644

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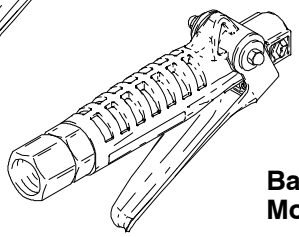

Bare Valve
Model 238646

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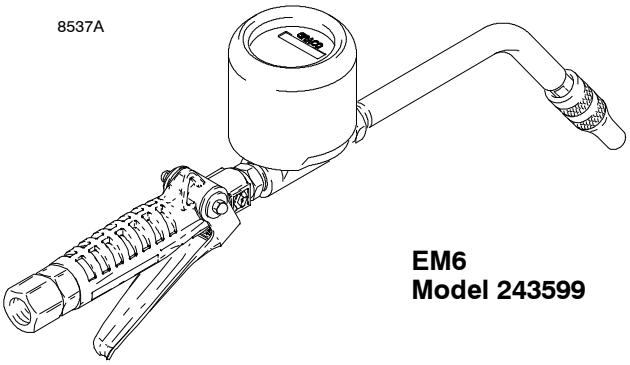

EM6
Model 243599

TI0407

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PROVEN QUALITY. LEADING TECHNOLOGY.

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441

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Notes

Models

Non-Metered Valves

V12 - with trigger lock

With Extension

238644 3/4 in. swivel, rigid extension

238645 3/4 in. swivel, flex extension

238651 1/2 in. swivel, rigid extension

238652 1/2 in. swivel, flex extension

V5 - with trigger lock

With Extension

222411, Series C, 1/2 in. swivel, oil nozzle/extension

222412, Series C, 1/2 in. swivel, gear lube extension

222413, Series C, 1/2 in. swivel, ATF nozzle/extension

Bare Valves

238646 3/4 in. swivel, no extension, with trigger lock

238647 1/2 in. swivel, no extension, with trigger lock

243992 1/2 in. swivel, no extension, without trigger lock

Metered Valves

EM12 - with trigger lock

English Meter

238636 3/4 in. swivel, rigid extension

238637 3/4 in. swivel, flex extension

238640 1/2 in. swivel, rigid extension

238641 1/2 in. swivel, flex extension

Metric Meter

238638 3/4 in. swivel, rigid extension

238639 3/4 in. swivel, flex extension

238642 1/2 in. swivel, rigid extension

238643 1/2 in. swivel, flex extension

EM6 - without trigger lock

English Meter

243599 1/2 in. swivel, rigid extension

243600 1/2 in. swivel, gear lube

243601 1/2 in. swivel, flex extension

Metric Meter

243602 1/2 in. swivel, rigid extension

243603 1/2 in. swivel, gear lube

243604 1/2 in. swivel, flex extension

Warnings

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

⚠ WARNING

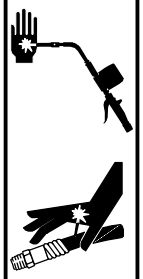
INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before you operate this equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. Refer to the **Technical Data** on page 15 for the maximum working pressure of this component.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids that contain such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180° F (82° C) or below -40° F (-40° C).
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

⚠ WARNING



SKIN INJECTION HAZARD

Fluid from the dispensing valve, leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin may look like just a cut, but it is a serious injury. **Get immediate surgical treatment.**
- Do not point the dispensing valve at anyone or at any part of the body.
- Do not put your hand or fingers over the end of the dispensing valve.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Use only extensions and nozzles that are designed for use with your dispensing valve.
- Do not use a low-pressure flexible extension with this equipment.
- Follow the **Pressure Relief Procedure** on page 9 before you clean, check, or service the equipment.
- Tighten all fluid connections before you operate the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must replace the entire hose.

⚠ WARNING

CALIFORNIA PROPOSITION 65

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

Installation

See manual 307965 for electronic meters installation, operation, parts, and cautions and warnings.

NOTE: Numbers in parenthesis, for example (7), and in the **Parts Drawings** are reference numbers in the **Parts List** on page12.

Typical Installation

Fig. 1 shows a typical installation. Additionally, these dispense valves can be installed on a console.

⚠ CAUTION

Do not use this electronic metered dispense valve on non-Graco consoles. Such use could result in the trigger becoming inadvertently pressed while the dispense valve is stowed.

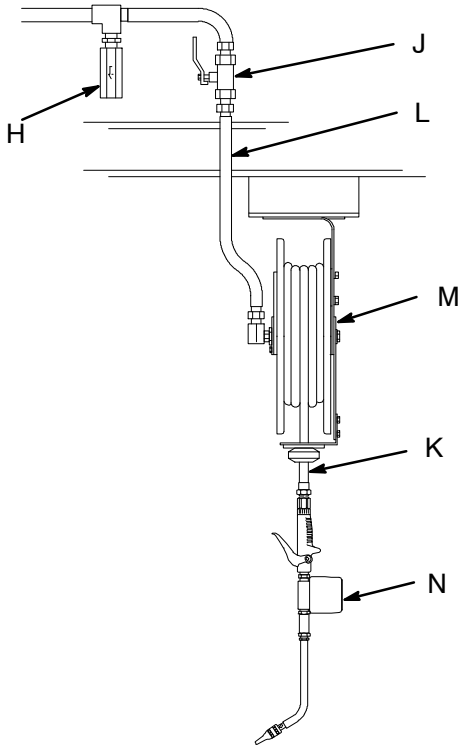


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Fig. 1

KEY	DESCRIPTION
H	Thermal relief kit (required) Part No. 237904 *Install downstream from pump.*
J	Fluid shut-off valve
K	Hose
L	Hose reel fluid inlet hose
M	Hose reel
N	Metered dispense valve

The installation shown in Fig. 1 is only a guide. The components shown are typical; however, it is not a complete system design. Contact your Graco distributor for assistance in designing a system to suit your particular needs.

⚠ CAUTION

To prevent line contamination, which can cause equipment malfunction or damage, flush the lines before you install the equipment in the system.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

The movement of fluids through the dispensing system generates static electricity. The static electricity can cause volatile fumes to ignite, resulting in explosion and fire. The dispensing system must always be grounded. See **Grounding** on page 8.

Installation

Pre-Installation Procedure

1. **Relieve the pressure.**

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

2. Close the fluid shut-off valve (item J in Fig. 1).

3. Ground the hose and reel or console. See **Grounding** on page 8. Do not use PTFE tape on the pipe joints; it may cause a loss of ground across the pipe joint.

Installation Procedure

⚠ CAUTION

If this is a new installation, or if the oil in the lines is contaminated, flush the lines before you install the dispensing valve.

New Installation

1. **Relieve the pressure.**

⚠ WARNING

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

*Steps 2 to 6 are the **Flushing Procedure**.*

2. Close the fluid shut-off valve (J) at each dispense position.

3. Make sure the main fluid outlet valve at the pump is closed, the air pressure to the pump motor is adjusted, and the air valve is open. Slowly open main fluid valve.

4. Place the hose end (with no dispense valve connected) into a container for waste oil. Secure the hose in the container so it will not come out during flushing. If you have multiple dispense positions, first flush the dispense position farthest from the pump, and work your way toward the pump.

5. Slowly open the shut-off valve (J) at the dispense position. Flush out a sufficient amount of oil to ensure that the entire system is clean, and close the valve.

6. Repeat step 5 at all other dispense positions.

Existing Installation

1. **Relieve the pressure.**

⚠ WARNING

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

2. Loosen and disconnect the hose from the old dispense valve (the one that you are replacing).

For steps 3 to 5, see Fig. 2.

3. Thread the extension (26a) into the outlet of the dispense valve, and tighten firmly.

NOTE: Do not over tighten the extension tube assembly by using the nozzle adapter to hand turn the nozzel. **For rigid extensions, thread the extension in at least three full turns, position the extension for proper alignment, and tighten the sealing nut (7). The PTFE seal on the sealing nut must face the valve housing.**

4. Apply thread sealant to the male threads of the hose fitting, thread the hose fitting into the swivel (20), and tighten firmly.

5. Thread the new nozzle (8) or nozzle adapter onto the extension, and tighten firmly.

6. Open all dispense position shut-off valves, and start the pump to pressurize the system. See the **Operation** section for proper operation.

7. For metered dispense valves, to ensure dispensing accuracy, purge all air from the fluid lines and dispense valves before you use them.

Model shown is a V12 with a 75° bend rigid extension.

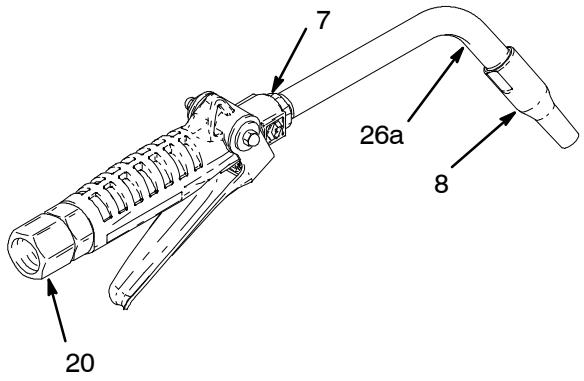

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Fig. 2

Installation

Grounding

Proper grounding is an essential part of maintaining a safe system.

To reduce the risk of static sparking, ground all system components per local and national electrical codes. Refer to the user manuals for the pump and other system components to ground the following:

- *Pump:* Follow manufacturer's recommendations.
- *Air and Fluid hoses:* Use only grounded hoses.
- *Air compressor:* Follow manufacturer's recommendations.
- *Fluid supply container:* Follow your local code.
- *To maintain grounding continuity when flushing or relieving pressure,* always hold a metal part of the valve firmly to the side of a grounded metal pail, then trigger the valve.

Operation

Pressure Relief Procedure

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
The equipment stays pressurized until pressure is manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispenser or splashing fluid, follow the **Pressure Relief Procedure** whenever you

- Are instructed to relieve pressure
- Check, clean, or service any system equipment
- Install or clean fluid nozzles

1. Turn off the power supply to the pump.
2. Trigger the valve into a waste container to relieve pressure.
3. Open any bleed-type master air valves and fluid drain valves in the system.
4. Leave the drain valve open until you are ready to pressurize the system.

If you suspect that the dispensing valve, extension, or nozzle is clogged or that pressure has not been fully relieved after following the steps above, very slowly loosen a fitting on the fluid line to relieve pressure gradually, then loosen it completely, then clear the clog.

⚠ WARNING

To reduce the risk of a serious bodily injury, including fluid injection, **never** exceed the maximum working pressure of the valve you are using or of the lowest rated component in your system.

Dispensing Procedure

See instruction manual 307965 for electronic meter operation.

NOTE: Before you begin, make sure you understand how to unlock the trigger. **Model EM6 does not have a trigger lock.**

1. Pull the trigger toward the valve body to open the valve and begin dispensing.
2. Lock the valve open by keeping the trigger squeezed and depressing the trigger lock button (25 in the **Parts Drawing**). Then release the trigger, releasing your forefinger from the trigger lock last.
3. Pull the trigger toward the valve body to release the trigger lock. The trigger lock disengages.
4. Release the trigger to stop dispensing.

Troubleshooting

Relieve the pressure before you check or repair the dispensing valve. Be sure all other valves and controls and the pump are operating properly.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

Problem	Cause	Solution
Display does not activate or is showing unintelligent characters.	Electronic control is malfunctioning.	Replace the electronic control. *See instruction manual 307965.*
Slow or no fluid flow	Filter is clogged, *or* Pump pressure is low, *or* Shutoff valve is not fully open, *or* Foreign material is jammed in the metering element.	1. **Relieve the pressure.** 2. Clean or replace the filter (10). *See **Filter Replacement** on page 11.* 3. If the problem remains, contact your Graco distributor for repair or replacement.
Oil leaks from swivel.	Swivel is loose.	Torque the swivel (20) to 15 to 20 ft-lb (20 to 27 N-m). If the problem remains, contact your Graco distributor for repair or replacement.
	O-ring is worn or damaged.	Replace the o-ring (6), and torque the swivel (20) to 15 to 20 ft-lb (20 to 27 N-m). If the problem remains, contact your Graco distributor for repair or replacement.
Oil drips from nozzle. *	Nozzle is damaged or obstructed.	Inspect the nozzle for damage or obstructions, and replace if damaged.
Valve leaks.	O-rings or valve seat are worn or damaged.	Replace the o-rings (15) and/or the valve seat (29). *See **Valve Handle Repair** on page 11.*

* Some fluid weepage is possible in applications where thermal expansion of fluid is possible.

Service

NOTE: ***See instruction manual 307965 for electronic meter service instructions.***

Valve Handle Repair

See Fig. 3.

NOTE: The large end of the pushrod (30) fits into a notch in the cam (21), which is part of the trigger assembly. It is important that you know this before you remove or install parts.

1. **Relieve the pressure.**

⚠ WARNING

To reduce the risk of serious injury, when you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

2. If you are replacing the o-rings (15), or the cam (21), or the push rod (30), remove the swivel (20), and remove the internal pieces. **You must remove the cam in order to get the push rod out of the outlet end of the valve handle.**

3. Remove the screws (14) and washers (28), and remove the trigger (24). Push the cam (21) out of the valve handle (18). Replace the o-rings (15) and/or the cam.

4. Replace any worn or broken parts.

5. Reassemble the internal pieces. **The push rod (30) must be inserted through the outlet end of the valve handle before the cam (21) is installed.**

6. Lubricate the cam, and slide it into the valve handle, making sure the notch is oriented as shown in Fig. 3. Ensure that the large end of the pushrod is resting in the notch of the cam.

7. Replace the screws (14) and washers (28), and torque the screws to 15 to 25 in-lb (1.7 to 2.8 N-m).

8. Replace the swivel (20), and torque to 15 to 20 ft-lb (20 to 27 N-m).

Filter Replacement

See Fig. 3.

1. **Relieve the pressure.**

⚠ WARNING

To reduce the risk of serious injury, when you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

2. Unscrew the hose fitting from the swivel (20).

3. Remove and replace the filter (10), which is inside the valve handle (18). Make sure the filter is oriented as shown in Fig. 3.

4. Thread the hose fitting into the swivel (20), and tighten. Make sure the swivel (20) is torqued to 15 to 20 ft-lb (20 to 27 N-m).

NOTE: For torque specifications and lubrication instructions, see the service notes in the **Parts Drawings** on pages 12, 13 and 14. **EM6** models do not have trigger lock parts 11, 25, and 27.

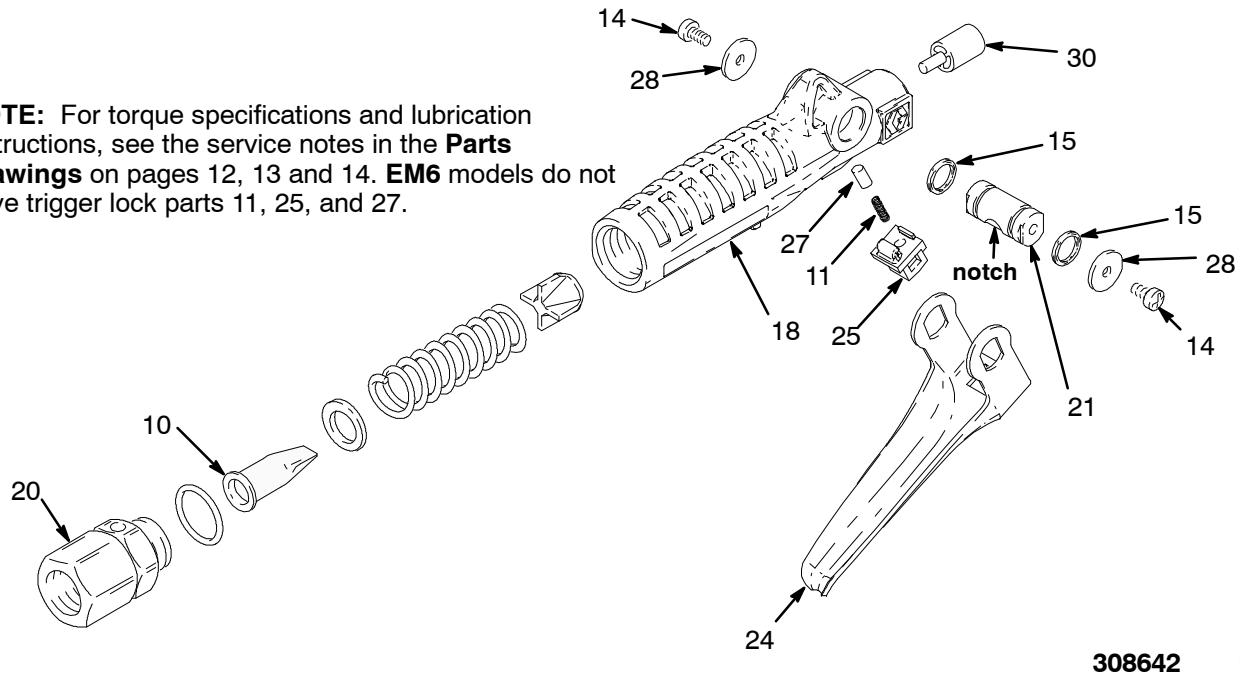

Fig. 3

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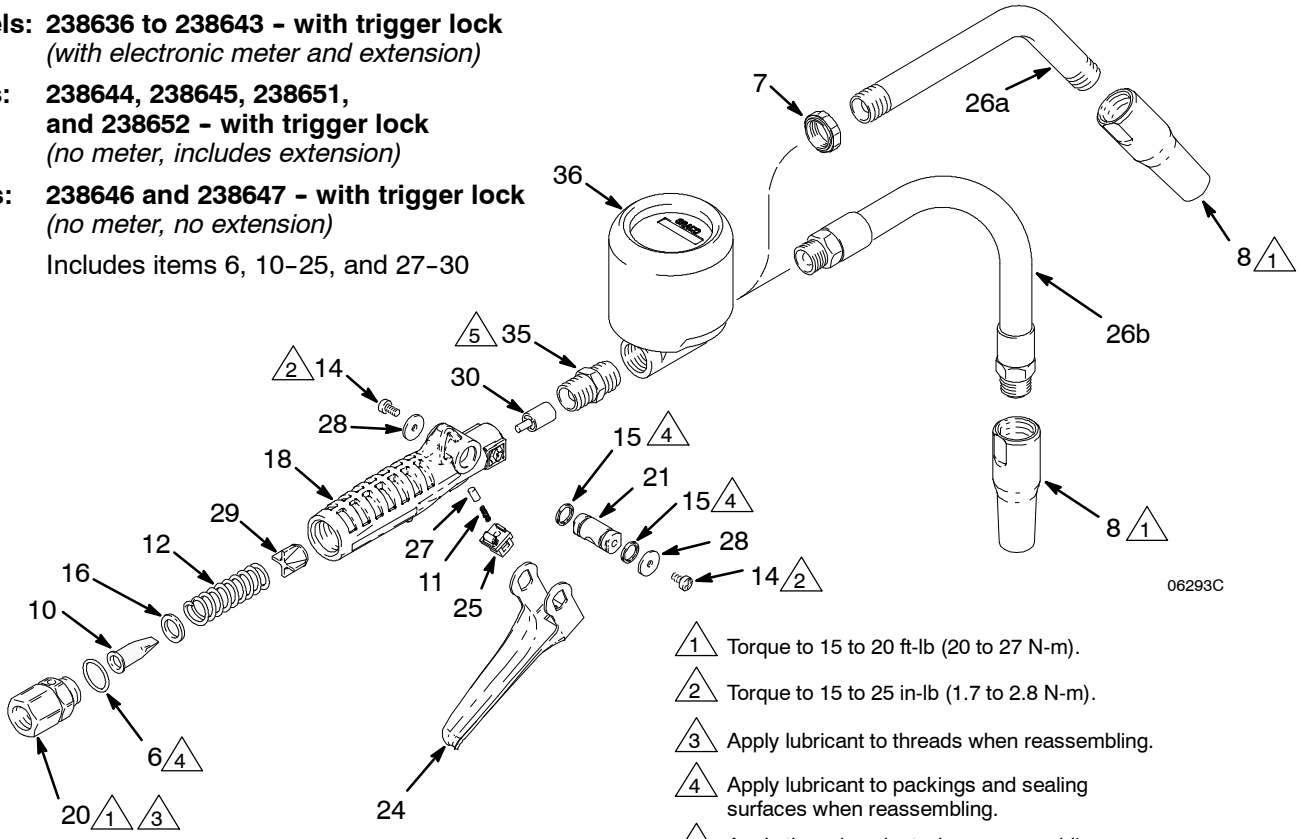
Parts — EM12 and V12 Dispense Valves

EM12 Models: **238636 to 238643 – with trigger lock**
(with electronic meter and extension)

V12 Models: **238644, 238645, 238651, and 238652 – with trigger lock**
(no meter, includes extension)

Bare Valves: **238646 and 238647 – with trigger lock**
(no meter, no extension)

Includes items 6, 10–25, and 27–30



1 Torque to 15 to 20 ft-lb (20 to 27 N-m).

2 Torque to 15 to 25 in-lb (1.7 to 2.8 N-m).

3 Apply lubricant to threads when reassembling.

4 Apply lubricant to packings and sealing surfaces when reassembling.

5 Apply thread sealant when reassembling.

Ref No.	Part No.	Description	Qty
6	111137	O–RING, valve/swivel	
		For Models 238636 to 238645, 238651, and 238652	2
		For Models 238646 and 238647	1
7	112841	NUT, seal; 1/2–14 npt	
		For Models 238636, 238638, 238640, 238642, 238644, and 238651	1
8	238400	NOZZLE, oil	
		For Models 238636 to 238645, 238651, and 238652	1
10	185416	FILTER	1
11	113924	SPRING, compression	1
12	113493	SPRING, compression	1
14	110637	SCREW, machine	2
15	113574	SEAL, o-ring	2
16	113627	WASHER, plain	1
18	191074	HANDLE, valve	1
20	238398	SWIVEL; 3/4–14 npt	
		For Models 238636 to 238639 and 238644 to 238646	1
	238399	SWIVEL; 1/2–14 npt	
		For Models 238640 to 238643, 238647, 238651 and 238652	1

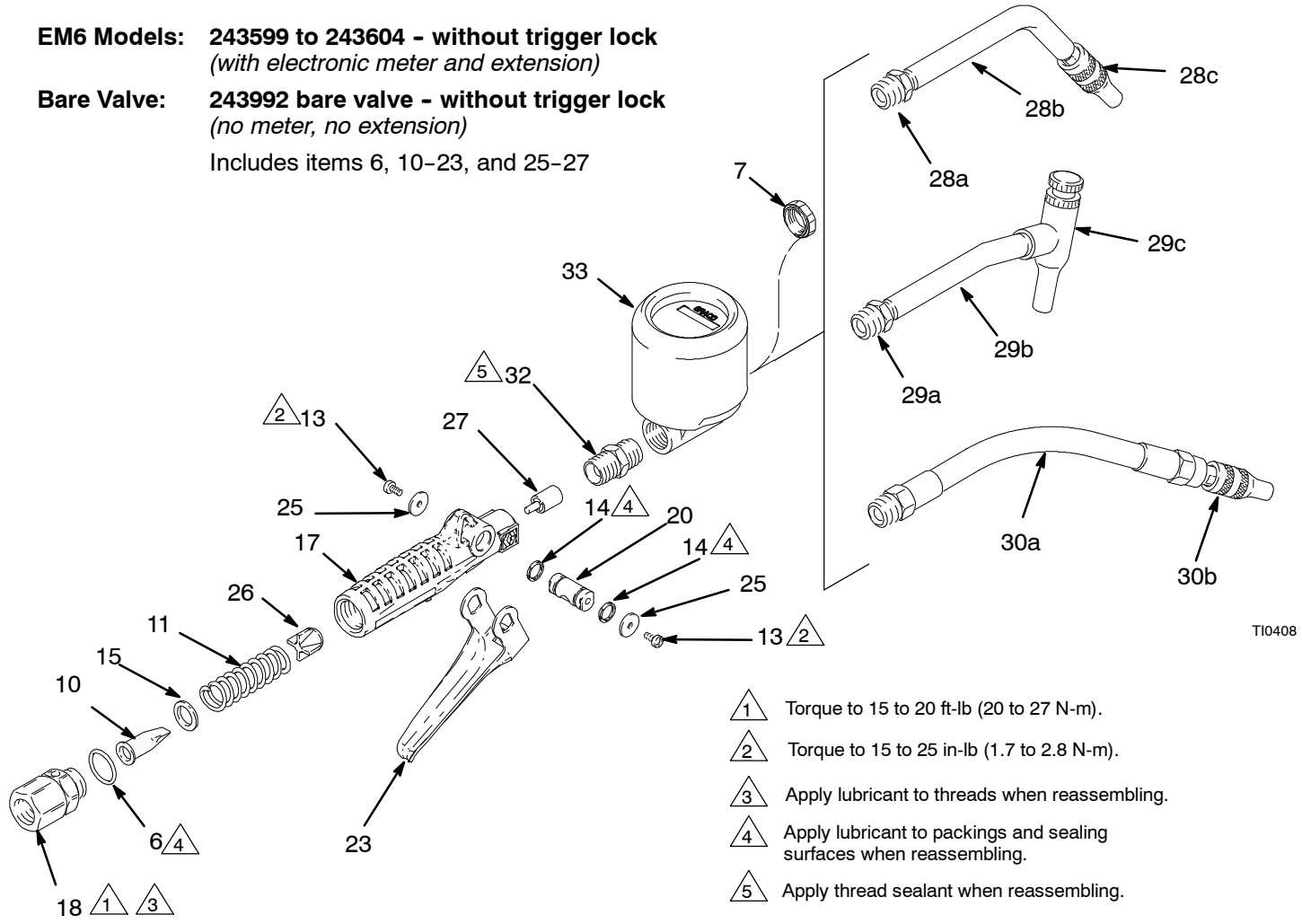
Ref No.	Part No.	Description	Qty
21	191315	CAM	1
24	191320	TRIGGER	1
25	191321	TRIGGER LOCK	1
26a	191403	TUBE, 75° bend; 1/2 npt	
		For Models 238636, 238638, 238640, 238642, 238644, and 238651	1
26b	238401	HOSE, flexible; 1/2 npt	
		For Models 238637, 238639, 238641, 238643, 238645, and 238652	1
27	192106	GUIDE, spring	1
28	191552	WASHER, flat	2
29	191313	SEAT, valve	1
30	192501	ROD, push	1
35	158491	NIPPLE	
		For Models 238636 to 238643	1
36	244075	METER, electronic; English	
		For Models 238636, 238637, 238640, and 238641	1
	244076	METER, electronic; metric	
		For Models 238638, 238639, 238642, and 238643	1

Parts — EM6 Dispense Valves

EM6 Models: **243599 to 243604 - without trigger lock**
(with electronic meter and extension)

Bare Valve: **243992 bare valve - without trigger lock**
(no meter, no extension)

Includes items 6, 10–23, and 25–27



1 Torque to 15 to 20 ft-lb (20 to 27 N-m).

2 Torque to 15 to 25 in-lb (1.7 to 2.8 N-m).

3 Apply lubricant to threads when reassembling.

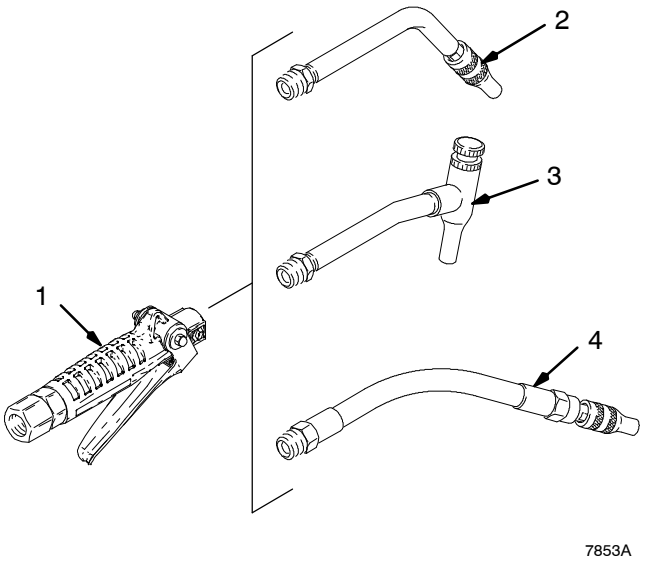
4 Apply lubricant to packings and sealing surfaces when reassembling.

5 Apply thread sealant when reassembling.

Ref No.	Part No.	Description	Qty
6	111137	O-RING, valve/swivel	
		For Models 243599 to 243604,	2
		For Model 243992	1
7	112841	NUT, seal; 1/2-14 npt	
		For Models 243599 to 243604,	1
10	185416	FILTER	1
11	113493	SPRING, compression	1
13	110637	SCREW, machine	2
14	113574	SEAL, quad ring	2
15	113627	WASHER, plain	1
17	191074	HANDLE, valve	1
18	238399	SWIVEL; 1/2-14 npt	1
20	191315	CAM	1
23	191320	TRIGGER	1
28	203265	NOZZLE, rigid extension	
		For Models 243599, and 243602	
		Includes items 28a-28c	1
28a	100081	. BUSHING; 1/2 npt(m) x 3/8 npt(f)	1
28b	159246	. TUBE, nozzle	1
28c	203655	. NOZZLE, non-drip	1

Ref No.	Part No.	Description	Qty
29	201701	NOZZLE, gear lube	
		For Models 243600 and 243603	
		Includes items 29a-29c	1
29a	100206	. BUSHING; 1/2 npt(m) x 1/4 npt(f)	1
29b	187046	. TUBE, nozzle	1
29c	201540	. NOZZLE, non-drip	
30	203687	NOZZLE, flexible extension	
		For Models 243601 and 243604	
		Includes items 30a-30b	1
30a	109160	. HOSE, coupled; 1 ft (0.3 m); 1/2-14 npt(m) x 1/4-18 npt(f)	1
30b	203655	. NOZZLE, non-drip	1
25	191552	WASHER, flat	1
26	191313	SEAT, valve	1
27	192501	ROD, push	1
32	158491	NIPPLE	
		For Models 243599 to 243604	1
33	244075	METER, electronic; English	
		For Models 243599, 243600, and 243601	1
	244076	METER, electronic; metric	
		For Models 243602, 243603, and 243604	1

Parts — V5 Dispense Valves



Model 238647 -- Bare Valve

Ref No.	Part No.	Description	Qty
1*	238647	VALVE	1

Model 222411, Series C -- For Oil

Ref No.	Part No.	Description	Qty
1*	238647	VALVE	1
2	203265	NOZZLE, oil	1
		See parts list on page 13.	

Model 222412, Series C -- For Gear Lube

Ref No.	Part No.	Description	Qty
1*	238647	VALVE	1
3	201701	NOZZLE, gear lube	1
		See parts list on page 13.	

Model 222413, Series C -- For A.T.F.

Ref No.	Part No.	Description	Qty
1*	238647	VALVE	1
4	203687	NOZZLE, A.T.F.	1
		See parts list on page 13.	

* *See parts below.*

Model 238647 -- Bare Valve, with trigger lock

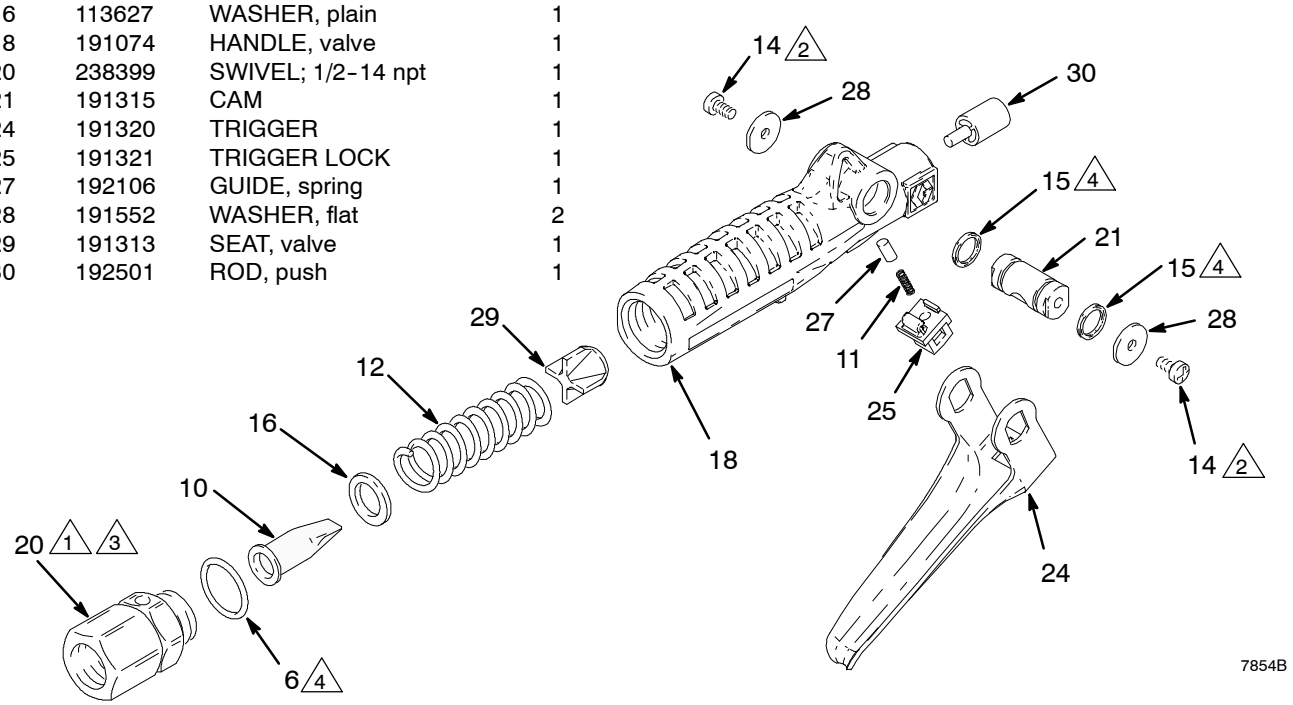
Ref No.	Part No.	Description	Qty
6	111137	O-RING, valve/swivel	1
10	185416	FILTER	1
11	113924	SPRING, compression	1
12	113493	SPRING, compression	1
14	110637	SCREW, machine	2
15	113574	SEAL, o-ring	2
16	113627	WASHER, plain	1
18	191074	HANDLE, valve	1
20	238399	SWIVEL; 1/2-14 npt	1
21	191315	CAM	1
24	191320	TRIGGER	1
25	191321	TRIGGER LOCK	1
27	192106	GUIDE, spring	1
28	191552	WASHER, flat	2
29	191313	SEAT, valve	1
30	192501	ROD, push	1

1 Torque to 15 to 20 ft-lb (20 to 27 N-m).

2 Torque to 15 to 25 in-lb (1.7 to 2.8 N-m).

3 Apply lubricant to threads when reassembling.

4 Apply lubricant to packings and sealing surfaces when reassembling.



Technical Data

NOTE: ***See instruction manual 307965 for electronic meter Technical Data.***

Recommended maximum flow rate*	
V5 dispense valves	5.0 gpm (18.9 lpm)
EM6 dispense valves	6.0 gpm (23.0 lpm)
V12 and EM12 dispense valves	12.0 gpm (45.4 lpm)
Maximum operating pressure	1500 psi (10 MPa, 102 bar)
Weight (without meter)	0.4 lb (0.18 kg)
Operating temperature range	-4° to 130° F (-20° to 55° C)
Storage temperature range	-40° to 140° F (-40° to 60° C)
Inlet sizes	1/2 npt and 3/4 npt
See page 3 for model numbers and configurations.	
Outlet size	1/2 npt
Wetted parts	aluminum, stainless steel, carbon steel, acetal, nitrile rubber, Geolast™

***** *Under normal operating conditions*

Geolast™ is a trademark of Advanced Elastomer Systems.

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

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Graco Headquarters: Minneapolis
International Offices: Belgium, Korea, China, Japan

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441
www.graco.com
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